

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

1. (Currently Amended) ~~Golf A golf club head that is at least partly~~  
comprising one or more parts made of a corrosion-free, precipitation-hardened,  
maraging steel ~~with~~ having a martensite temperature  $M_s \geq 130^\circ\text{C}$ , and a ferrite  
content  $^{\circ}\text{Ferrite} < 3\%$ , wherein the maraging steel consists essentially ~~consists~~ of:  
6.0 to 9.0 wt.% nickel, or nickel and cobalt;  
11.0 to 15.0 wt.% chromium, chromium and molybdenum, chromium and  
tungsten, or chromium, molybdenum and tungsten;  
0.1 to 0.3 wt.% titanium;  
0.2 to 0.3 wt.% beryllium;  
0 to 0.1 wt.% cerium or cerium misch metal as a deoxidizing agent;  
0 to 0.5 wt.% each of one or more of the elements manganese, niobium, or  
silicon;  
0 to 0.1 wt.% each of one or more of the elements C, N, S, P, B, H, or O;  
0 to 4 wt.% copper;  
the rest being iron together with unavoidable impurities, and  
wherein the maraging steel ~~in accordance with the invention~~ exhibits a tensile  
strength  $R_m > 2000\text{ MPa}$ , ~~and~~ a yield strength  $R_{p0.2} > 1900\text{ MPa}$ , and a Vickers  
Hardness  $HV > 700$ .

2. (Currently Amended) ~~Golf~~ The golf club head in accordance with claim 1 wherein chromium and molybdenum, chromium and tungsten, or chromium, molybdenum and tungsten are present, such that up to 35% of the ~~chromium content~~ can be replaced by of the amount thereof is molybdenum and/or tungsten.

3. (Currently Amended) ~~Golf~~ The golf club head in accordance with claim 2 wherein the maraging steel consists essentially ~~consists~~ of 8.0 wt.% nickel, 13.0 wt.% chromium, 0.2 wt.% titanium, 0.25 wt.% beryllium, 1.0 wt.% molybdenum, the rest being iron together with unavoidable impurities.

4. (Canceled)

5. (Canceled)

6. (Canceled)

7. (Currently Amended) ~~Golf~~ The golf club head in accordance with claim 1 ~~5~~ wherein the maraging steel exhibits a martensite temperature  $M_s = [629.45 - \underline{16.8} \cdot 6.8(Cr + 1.2 Mo + 0.6 W) - 24.5(Ni + 0.15 Co) - 13.2 Mn - 11.2 Si - 670(C+N)]$  °C.

8. (Currently Amended) ~~Golf~~ The golf club head in accordance with claim 1 ~~5~~ wherein the spring steel exhibits a ferrite content  $^{\circ}Ferrite = [11.8 Si + 7.92(Cr + Mo + 0.5 W) + 15.84 Ti - 2.91 Mn - 5.83(Ni + 0.3 Co) - 174.9(C + N) - 77.08]$  wt.%.

9. (Currently Amended) ~~Golf~~ The golf club head in accordance with claim 1 wherein the maraging steel exhibits a tensile strength  $R_m > 2400$  MPa.

10. (Currently Amended) ~~Golf~~ The golf club head in accordance with claim 21 9 wherein the maraging steel exhibits a tensile strength  $R_m$  of approximately 2800 MPa.

11. (Currently Amended) ~~Golf~~ The golf club head in accordance with claim 1 wherein the maraging steel exhibits a yield strength  $R_{p0.2} > 2100$  MPa.

12. (Canceled)

13. (Currently Amended) ~~Golf~~ The golf club head in accordance with claim 1, wherein the maraging steel exhibits an alternating flexure strength  $\sigma_{bw}$  of approximately 1350 MPa.

14 (Currently Amended) ~~Golf~~ The golf club head in accordance with claim 13 wherein the maraging steel exhibits an alternating flexure strength  $\sigma_{bw}$  of approximately 1550 MPa.

15. (Canceled)

16. (Currently Amended) ~~Golf~~ The golf club head in accordance with claim 1 ~~45~~ wherein the maraging steel exhibits a Vickers hardness  $HV > 800$ .

17. (Canceled)

18. (Currently Amended) ~~Golf~~ The golf club head in accordance with claim 23 ~~47~~ wherein the maraging steel exhibits a maximal storable energy of approximately 40 MPa.

19. (Currently Amended) ~~Process~~ A process for the manufacturing of maraging steel for a golf club head in accordance with claim 1 comprising ~~the following process steps:~~

- (a) Melting the alloy under vacuum or protective gas, followed by casting the molten alloy into an ingot;
- (b) Hot forming the ingot into a strip at a temperature  $T_1$ , such that  $900\text{ }^{\circ}\text{C} \leq T_1 \leq 1150\text{ }^{\circ}\text{C}$ ;
- (c) Carrying out a solution annealing of the strip at a temperature  $T_2$ , such that  $850\text{ }^{\circ}\text{C} \leq T_2 \leq 1100\text{ }^{\circ}\text{C}$ ;
- (d) Cooling the strip to a temperature  $T_3 \leq 300\text{ }^{\circ}\text{C}$ ;
- (e) Grinding the strip to remove any ~~the~~ beryllium-depleted zone;
- (f) Cold forming the strip with a cold forming degree that is greater than or equal to 60%; and
- (g) Heat treating the strip in a first ~~First heat treatment of the strip at a~~ temperature  $T_4$ , such that  $400\text{ }^{\circ}\text{C} \leq T_4 \leq 550\text{ }^{\circ}\text{C}$  for a duration of 1 hour to 10 hours.

20. (Currently Amended) ~~Process~~ The process in accordance with claim 17 further comprising ~~the following additional process step~~:

(h) Heat treating the strip in a second ~~Second~~ heat treatment ~~of the strip~~ at a temperature  $T_5$ , such that  $300\text{ }^{\circ}\text{C} \leq T_5 \leq 470\text{ }^{\circ}\text{C}$  for a duration of ten to 100 hours.

21. (New) A golf club head comprising one or more parts made of a corrosion-free, precipitation-hardened, maraging steel having a martensite temperature  $M_s \geq 130\text{ }^{\circ}\text{C}$ , and a ferrite content  $\text{Ferrite} < 3\%$ , wherein the maraging steel consists essentially of:

6.0 to 9.0 wt.% nickel;

11.0 to 15.0 wt.% chromium, chromium and molybdenum, chromium and tungsten, or chromium, molybdenum and tungsten;

0.1 to 0.3 wt.% titanium;

0.2 to 0.3 wt.% beryllium;

0 to 0.1 wt.% cerium or cerium misch metal as a deoxidizing agent;

0 to 0.5 wt.% each of one or more of the elements manganese, niobium, or silicon;

0 to 0.1 wt.% each of one or more of the elements C, N, S, P, B, H, or O;

the rest being iron together with unavoidable impurities, and

wherein the maraging steel exhibits a tensile strength  $R_m > 2400\text{ MPa}$ , a yield strength  $R_{p0.2} > 1900\text{ MPa}$ .

22. (New) A golf club head comprising one or more parts made of a corrosion-free, precipitation-hardened, maraging steel having a martensite temperature  $M_s \geq 130^\circ\text{C}$ , and a ferrite content  $^{\text{C}}\text{Ferrite} < 3\%$ , wherein the maraging steel consists essentially of:

6.0 to 9.0 wt.% nickel;

11.0 to 15.0 wt.% chromium, chromium and molybdenum, chromium and tungsten, or chromium, molybdenum and tungsten;

0.1 to 0.3 wt.% titanium;

0.2 to 0.3 wt.% beryllium;

0 to 0.1 wt.% cerium or cerium misch metal as a deoxidizing agent;

0 to 0.5 wt.% each of one or more of the elements manganese, niobium, or silicon;

0 to 0.1 wt.% each of one or more of the elements C, N, S, P, B, H, or O;

the rest being iron together with unavoidable impurities, and

wherein the maraging steel exhibits a tensile strength  $R_m > 2000\text{ MPa}$ , a yield strength  $R_{p0.2} > 2500\text{ MPa}$ .

23. (New) A golf club head comprising one or more parts made of a corrosion-free, precipitation-hardened, maraging steel having a martensite temperature  $M_s \geq 130^\circ\text{C}$ , and a ferrite content  $^{\text{C}}\text{Ferrite} < 3\%$ , wherein the maraging steel consists essentially of:

6.0 to 9.0 wt.% nickel;

11.0 to 15.0 wt.% chromium, chromium and molybdenum, chromium and tungsten, or chromium, molybdenum and tungsten;

0.1 to 0.3 wt.% titanium;

0.2 to 0.3 wt.% beryllium;

0 to 0.1 wt.% cerium or cerium misch metal as a deoxidizing agent;

0 to 0.5 wt.% each of one or more of the elements manganese, niobium, or silicon;

0 to 0.1 wt.% each of one or more of the elements C, N, S, P, B, H, or O;

the rest being iron together with unavoidable impurities, and

wherein the maraging steel exhibits a tensile strength  $R_m > 2000$  MPa, a yield strength  $R_{p0.2} > 1900$  MPa, and a maximal storable energy of more than 30 MPa.

24. (New) The golf club head in accordance with claim 1, wherein maraging steel has a fine martensitic structure with grain sizes in the range of approximately 1  $\mu\text{m}$ .